REMARKS

The Office Action dated November 27, 2007 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-3, 5, 7-10, 12-14, and 16-18 have been amended to more particularly point out and distinctly claim the subject matter of the invention. New claims 19 and 20 have been added. Claims 6 and 15 have been canceled without prejudice or disclaimer. No new matter has been added. Claims 1-5, 7-14, and 16-20 are currently pending in the application and are respectfully submitted for consideration.

Claims 5-6, 8 and 17 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,222,820 to Hamami (hereinafter "Hamami"). This rejection is respectfully traversed for at least the following reasons.

Claim 5, upon which claims 7, 8, and 19 are dependent, recites a method including monitoring, in a host device, the state of an active up-link in a host device leading to an intermediate tree element in a first tree, detecting, in the host device, a link-down state in the active up-link, and notifying host software about the link-down state. The method further includes starting a recovery process in the host device by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree. The redundant tree structured local area network comprises at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at

least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage.

Claim 17 recites an apparatus including monitoring means for monitoring the state of an active up-link leading to an intermediate tree element in a first tree of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage. The apparatus also includes detecting means for detecting a link-down state in the active up-link, notifying means for notifying host software about the link-down state, and starting means for starting a recovery process by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree.

As will be discussed below, Hamami fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above.

Hamami discloses a method of selectively providing redundancy on a dynamic basis to end users that request it. The method establishes both a primary and a redundant connection for each connection requested to be redundant. A unique call reference number generated by the end user is carried unchanged from switch to switch along the path. Each switch along the routing path registers the call as a primary call in its database. Subsequently, once the primary connection is established successfully, the redundant

connection is established. Each switch along the redundant path checks to see if the primary path already includes that switch. If it does, then either the call can be rejected or it can be permitted with the condition that a link is to be used to the next hop that is not in use on the primary path. Once established, the originator of the redundant path continuously monitors the primary connection for failures. If a failure is detected, data traffic is switched from the primary connection to the redundant connection with any loss of cells being handled by the upper communication protocol layers.

Applicants respectfully submit that Hamami fails to disclose or suggest all of the elements of the present claims. For example, Hamami does not disclose or suggest, at least, "starting a recovery process in the host device by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree," and "wherein the redundant tree structured local area network comprises at least two separate subtrees ending to a set of same host devices," as recited in claim 5 and similarly recited in claim 17.

As discussed above, Hamami discloses that the network edge switch continuously checks the validity of the primary connection, and if a failure is detected, the entity that detected the failure notifies the other end and switches the data traffic from the primary to the redundant connection. Therefore, Hamami merely teaches a general back-up connection in case a primary connection fails. As outlined above, claims 5 and 17 recite that the redundant tree structured local area network comprises at least two separate subtrees ending to a set of same host devices. Hamami fails to teach such a redundant

tree structure. Furthermore, Hamami fails to disclose or suggest that, in case of a failure in the active up-link, the host device changes the failed active up-link to a redundant up-link leading to an upper stage tree element in a second tree, as recited in claims 5 and 17. Thus, Hamami fails to disclose or suggest all of the elements of claims 5 and 17.

Claim 8 is dependent upon claim 5. As such, claim 8 should be allowed for at least its dependence upon claim 5, and for the specific limitations recited therein.

Claims 1-4, 9-16 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hamami in view of U.S. Patent No. 5,138,615 to Lamport (hereinafter "Lamport"). The Office Action took the position that Hamami discloses all of the elements of the claims, with the exception of "setting a dependent down-link in a link-down state, if said critical uplink is detected to be in the link-down state" (Office Action, page 5). The Office Action then cited Lamport as allegedly curing this deficiency in Hamami. This rejection is respectfully traversed for at least the following reasons.

Claim 1, upon which claims 2-4 are dependent, recites a method including monitoring in an intermediate tree element the state of a critical up-link, the critical up-link being an only link from the intermediate tree element to an upper stage tree element in the tree structure. The method further includes detecting, in the intermediate tree element, a link-down state in the critical up-link, and setting, in the intermediate tree element, a dependent down-link in a link-down state, if said critical up-link is detected to be in the link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link from the intermediate tree element to the

lower stage tree element in the tree structure. The redundant tree structured local area network comprises at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage.

Claim 9, upon which claims 10-13 are dependent, recites an apparatus including a controller. The controller is configured to monitor the state of a critical up-link, the critical up-link being an only link to an upper stage tree element in the tree structure of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises to at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage. The controller is also configured to detect a link-down state in the critical up-link, and set a dependent down-link in a link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link to the lower stage tree element in the tree structure.

Claim 14, upon which claim 20 is dependent, recites an apparatus including a controller. The controller is configured to monitor the state of an active up-link leading to an intermediate tree element in a first tree of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an

intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage. The controller is further configured to detect a link-down state in the active up-link, notify host software about the link-down state, and start a recovery process by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree.

Claim 16 recites an apparatus including monitoring means for monitoring the state of a critical up-link, the critical up-link being an only link to an upper stage tree element in the tree structure of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage. The apparatus also includes detecting means for detecting a link-down state in the critical up-link, and setting means for setting a dependent down-link in a link-down state the dependent down-link leading to a lower stage tree element in the tree structure and being an only link to the lower stage tree element in the tree structure.

Claim 18 recites a system including a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage. The system also includes at least one apparatus comprising a controller configured to monitor the state of a critical up-link, the critical

up-link being an only link from the intermediate tree element to an upper stage tree element in the tree structure; to detect a link-down state in the critical up-link, and to set a dependent down-link in a link-down state, if said critical up-link is detected to be in the link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link from the intermediate tree element to the lower stage tree element in the tree structure. The system further comprises at least one host device comprising a controller configured to monitor the state of an active up-link in a host device leading to an intermediate tree element in a first tree, to detect a link-down state in the active up-link, to notify host software about the link-down state, and to start a recovery process by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree.

As will be discussed below, the combination of Hamami and Lamport fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above.

Hamami is discussed above. Lamport discloses that a mesh connected local area network provides automatic packet switching and routing between host computers coupled to the network. The network has a multiplicity of cut-through, nonblocking switches, each capable of simultaneously routing a multiplicity of data packets. Low host-to-host latency is achieved through the use of cut-through switches with separate internal buffers for each packet being routed. The switches are interconnected with one another and are coupled to the host computers of the network by point to point full duplex

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links. While each switch can be coupled to ten or more network members, i.e., switches and hosts, each link is coupled to only two network members and is dedicated to carrying signals there between. Whenever a new switch or link is added to the network, and whenever a switch or link fails, the switches in the network automatically reconfigure the network by re-computing the set of legal paths through the network.

Applicants respectfully submit that Hamami and Lamport, whether considered individually or combined, fail to disclose or suggest all of the elements of the present claims. For example, the combination of Hamami and Lamport does not disclose or suggest "monitoring in an intermediate tree element the state of a critical up-link, the critical up-link being an only link from the intermediate tree element to an upper stage tree element in the tree structure; detecting, in the intermediate tree element, a link-down state in the critical up-link; and setting, in the intermediate tree element, a dependent down-link in a link-down state, if said critical up-link is detected to be in the link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link from the intermediate tree element to the lower stage tree element in the tree structure, wherein the redundant tree structured local area network comprises at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage" as recited in claim 1.

Similarly, the combination of Hamami and Lamport fails to disclose or suggest a controller configured to ""monitor the state of a critical up-link, the critical up-link being an only link to an upper stage tree element in the tree structure of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises to at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage, detect a link-down state in the critical up-link, and set a dependent down-link in a link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link to the lower stage tree element in the tree structure," as recited in claim 9 and similarly recited in claims 16 and 18.

The combination of Hamami and Lamport also does not disclose or suggest a controller configured to "monitor the state of an active up-link leading to an intermediate tree element in a first tree of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage, detect a link-down state in the active up-link," and "start a recovery process by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree," as recited in claim 14.

Applicants respectfully submit that neither Hamami nor Lamport disclose or suggest a redundant tree structured local area network, as provided by the claimed invention. According to embodiments of the invention, a critical up-link is an only link from an intermediate tree element to an upper stage tree element in the tree structure. In other words, if the critical up-link fails, there is no alternative connection leading to the upper stage tree element. A dependent down-link, according to embodiments of the invention, is a link leading to a lower stage tree element in the tree structure and being an only link from the intermediate tree element to the lower stage tree element in the tree structure. When a critical up-link fails, a dependent down-link is automatically set in a link-down state.

The Office Action appears to refer to Column 3, lines 55-57 of Hamami and Column 33, lines 51-59 of Lamport as allegedly disclosing the above-outlined limitations of the claims. However, Hamami and Lamport do not disclose or suggest the monitoring step of the present claims. Lamport only generally states that OAM is used to detect a failure of a primary virtual circuit. Furthermore, both Hamami and Lamport fail to teach or suggest that, in response to detecting in the intermediate tree element a link-down state in the critical up-link, a dependent down-link is set in the intermediate tree element in a link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link from the intermediate tree element to the lower stage tree element in the tree structure. Lamport only teaches that a host is connected to two

switches by distinct links (Lamport, Column 33, lines 51-59). Such a feature is only a normal back-up feature in case of failures.

Therefore, Applicants respectfully submit that the combination of Hamami and Lamport fails to disclose or suggest all of the elements of claims 1, 9, 14, 16, and 18. Accordingly, Applicants respectfully request that the rejection of claims 1, 9, 14, 16, and 18 be withdrawn.

Claims 2-4 and 10-13 are dependent upon claims 1 and 9, respectively. As such, claims 2-4 and 10-13 should be allowed for at least their dependence upon claims 1 and 9, and for the specific limitations recited therein.

Claim 7 is rejected under 35 U.S.C. §103(a) as being unpatentable over Hamami in view of U.S. Patent No. 7,006,480 to Border et al. (hereinafter "Border"). The Office Action took the position that Hamami discloses all of the elements of claim 7, with the exception of transferring the host to a predetermined default mode of operation. The Office Action then cited Border as allegedly curing this deficiency in Hamami. This rejection is respectfully traversed for at least the following reasons.

Hamami is discussed above. Border discloses a communication system having a proxy architecture. The system includes a platform that provides performance enhancing functions. The platform includes a backbone connection apparatus that routes information within a communication system. The backbone connection apparatus receives backbone connection parameters from the platform and maintains the current parameters in one or more backbone connection profiles. The backbone connection

apparatus routes packets of information throughout the communication system based on the backbone connection profile. The backbone connection apparatus supports the use of different backbone protocol for different types of backbone links.

Claim 7 is dependent upon claim 5. As discussed above, Hamami fails to disclose or suggest all of the elements of claim 5. In addition, Border fails to cure the deficiencies in Hamami, as Border also fails to disclose "starting a recovery process in the host device by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree," and "wherein the redundant tree structured local area network comprises at least two separate subtrees ending to a set of same host devices," as recited in claim 5. Therefore, the combination of Hamami and Border fails to disclose or suggest all of the elements of claim 7. Furthermore, claim 7 should be allowed for at least its dependence upon claim 5, and for the specific limitations recited therein.

For at least the reasons discussed above, Applicants respectfully submit that the cited prior art fails to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-5, 7-14, and 16-20 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by

telephone, the applicant's undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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